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**CLIMATE ACTION IN THE EUROPEAN COMMISSION'S
NATURAL GAS POLICY**

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Abstract

Natural gas has been understood to be the *transition fuel* allowing *inter alia* the European Union to substitute more polluting fossil fuels when moving to a renewable energy-based society. This role has been based on it yielding the least emissions upon combustion, which had insulated it from the negative impacts of climate policy. A combination of an extensive infrastructure and legal-technical framework, widely adopted consumer practices, and the transition fuel narrative both built on and furthered the lock-in of the fuel. Natural gas policy essentially refrained from incorporating significant climate considerations and the fuel was assumed to have bright future. As the European Commission's climate action became more stringent, the parallel paths of climate and natural gas policy eventually collided. The promulgators of the transition fuel narrative, the natural gas industry, was unprepared for such changes. However, it was quick to mobilise and devise strategies to sustain its role in the EU's energy future—the impacts of which are yet to be seen.

JEL: F500; Q340; Q480

Keywords: EU; natural gas; transition fuel; climate policy; energy transition

1. Introduction

The European Commission² has reshaped the European Union's (EU) natural gas markets during the past three decades. It rolled out natural gas directives and

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introduced pivotal policy packages to support an efficient, secure, and competitive market. This paper explores how climate considerations shaped the Commission's actions, given the rising influence of supranational climate policy. It sets out to answer the following research question: how has the European Commission's natural gas policy-making reflected climate action? I hypothesise that climate policy and energy policy largely remained bifurcated and only began to converge relatively recently in the EU. This was partially reliant on the fuel's lock-in and stakeholders accepting the narrative that natural gas is the cleanest fossil fuel and it could play the role of a *transition fuel*—a source of energy that can substitute more polluting fossil fuels *en route* to a renewable energy mix. To answer the research question and explore the proposed hypothesis, I assess the EU's natural gas policy since the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 to see how it reflects climate considerations. This paper takes a chronological approach to understand how climate change's impact filtered into the Commission's natural gas policy. It surveys six epochs, which structure the paper. First, I begin by discussing the lead up to the First Energy Package—introduced in 1998—which overlapped with the launch of a global climate agenda in Rio. Second, I explore the lead up to the Second Energy Package and how liberalisation was (not particularly) impacted by climate considerations. Third, I turn to the Third Energy Package. Fourth, I assess the proliferating transition fuel discourse in the late-aughts and the early-2010s. Fifth, I explore the impact of the Paris Agreement and subsequent climate policy, which proved to be a pivotal turning point. Sixth, I survey the natural gas industry's response to rising climate action in recent years. In the final section, I draw conclusions and articulate my main findings. The paper is based on the analysis of main European Commission natural gas and climate policy documents issued during the assessed epochs. This entailed the rigorous document analysis of over one hundred directives, communications, press releases, and other publications issued by the Commission. I conducted a further forty-nine interviews to structure my analysis and analysed a further 150+ documents, reports, position papers, and public statements issued by key stakeholders between 1992 and 2018.

² Unless noted otherwise, this paper uses 'Commission' to refer to the European Commission for short.

2. The onset of natural gas market engineering

A need for coordinated global climate action was propelled on the agendas of policy-makers throughout the world following the establishment of the UNFCCC in 1992 at the Rio Conference. While a number of COP participants heralded the need to reduce emissions, this did not yet translate into action that would curtail greenhouse gas emissions. Natural gas was a particularly well insulated fuel from climate action, since it had been understood to be the least polluting fossil fuel, given its relatively low NO_x, SO_x, CO₂, and particulate matter emissions upon combustion. These physical parameters coupled with the extensive lock-in of the fuel predicated on its infrastructure, framework to govern its markets, and the entrenched consumption practices lent credence to the narrative that natural gas is the *transition fuel* which can help society move from more polluting fossil fuels (e.g. coal) to a renewable energy-based social system. This narrative had been widely accepted on environmental grounds (i.e. focusing on air pollution), but with the beginning of global society's focus on tackling climate change it was adapted—the IPCC (1990) being amongst the first prominent institutions to identify the transitory role natural gas could play.

Early climate action had little impact on energy policy, but it had particularly limited implications on European natural gas markets which were thriving in the 1990s. Spearheaded by the UK, where the government's decision to liberalise its market coupled with the exploitation of North Sea resources spurred the *dash for gas*, which entailed large-scale coal-to-gas switching (Newbery, 1998; Winskel, 2002). Environmental considerations only played a minor role in this dynamic: air pollution alleviation was a marginal factor at best, overshadowed by the prospect of a domestically produced hydrocarbons paying a greater role, while providing an alternative to a volatile coal industry. The Commission followed the UK's lead, repealing the prohibition limiting natural gas burning for electricity generation³ *en route* to liberalising the EU's natural gas market. This, paired with rising supply from the North Sea, boosted the fuel's, prompting the Commission to further pursue the liberalisation of mainland Europe's natural gas market as well (Matlary, 1997; Herweg, 2015).

³ COM(95) 478 final, 18.10.1995.

The Commission had formulated its idea of an internal energy market and a common energy policy in a Green Paper⁴, which also called for a need to address the environmental implications of energy consumption. Its approach suggested that it would address the consumption of more polluting and CO₂-intensive fossil fuels (e.g. coal) before natural gas. Accordingly, environmental grounds supported the adoption of natural gas as opposed to curtailing its consumption, leading the Commission to pursue the development of the fuel's market. The Council and the Parliament's adopted the First Energy Package⁵. "[T]he first IEM [internal energy market] initiatives, [...] merely focussed on liberalisation and competitiveness, and not on environmental protection" (Fiedler, 2015, p. 5) in contradiction to the EU's simultaneous ratification of the Kyoto Protocol and its bid to lead global climate action (Oberthür and Kelly, 2008). The approach was clear in the Commission's natural gas market interventions; although, in natural gas' case, the congruency stems from the proclaimed approach that natural gas could substitute more polluting fossil fuels.

The Commission's neglect for environmental concerns was in-part driven by the distribution of power within the supranational institution itself. Since the EU and its precursors were established, heads of member states envisioned it to be a key actor that designed and enforced competition laws. These were initially aimed to limit coal and steel dumping by facilitating unfettered intra-Community competition, but the supranational institution's competencies were subsequently expanded to include other sectors and issues. The approach led to the concentration of political power in the Directorate-General Competition (DG COMP), which was at the heart of the European Community's goal. Only gradually did other Directorate-General's receive greater jurisdiction and a wider array of tasks—including Directorate-General Energy (DG ENER) (and its predecessor) in the 1990s (Matlary, 1997). In comparison, Directorate-General Environment's (DG ENV)⁶ role in the EU's policy-making only began to increase in the early-1990s with the Single European Act (SEA), as climate change rose on the global policy agenda. Even then, its influence was far overshadowed by the agenda of DG COMP and DG ENER.

⁴ COM(94) 659 final, 11.1.1995 and (European Commission, 1995).

⁵ For electricity: Directive 96/92/EC, 19.12.1996 and for natural gas: Directive 98/30/EC, 22.06.1998.

⁶ Directorate-General Climate Action was split from DG ENV in 2010.

The Commission's favourable framing of natural gas in the First Energy Package and supporting documentation was also shaped by a strengthening global discourse that natural gas can be a *bridge*⁷ or a *transition fuel* from more polluting coal to low-carbon alternatives. This, primarily manifested on the level of discourse, since climate policy had little impact on the composition of the energy mix. Nonetheless, the idea that natural gas will be a transition fuel was first publicised by academics, while it was later—in the late aughts and early 2010s—adopted and promulgated by the fossil fuel industry and policy-makers as well. It first surfaces in the work of Flavin (1992), who argues—echoing the First IPCC (1990) Assessment—that society will need a transition fuel to shift from fossil fuel-based practices to renewable-reliant ones. He basis his argument on natural gas' ability to alleviate emissions by substituting alternative fossil fuels—a position he maintained in later work (Flavin and Lenssen, 1994; Lenssen and Flavin, 1996). Natural gas' *transitional fuel* descriptor also surfaces in an influential paper published by Nebojsa Nakicenovic (1994). At the time, the hydrocarbon industry paid relatively little attention to these arguments as they undertook a campaign of climate denialism (Oreskes and Conway, 2011).

3. A market in flux

In the early-2000s, the Commission continued its natural gas market liberalisation in response to three factors: (1) changing EU natural gas market dynamics, (2) a changing global security context, and (3) moderate economic growth in the EU. First, the *dash for gas* in the EU not only increased natural gas consumption, but fundamentally rewrote supply-demand dynamics. It shifted from a predominantly seasonal fuel (used for heating) to one consumed throughout the year and whose trade required much greater flexibility from actors throughout the supply chain (Hallack, 2013a). This was coupled with suppliers and infrastructure-owners offering greater flexibility to buyers (Hallack, 2013b; Ruester, 2013). Security considerations also increased as the global security landscape deterred in the early-2000s, while the EU's natural gas import-reliance increased. The Commission sought to enhance security by

⁷ Note that leaders in the Soviet Union had already used the term *bridging fuel* for natural gas, since they considered it as the fuel „carrying the Soviet economy from the era of oil toward the coal-and-nuclear future of the next century” (Gustafson, 2014, p. 137).

dismantling trade barriers and thus enabling the efficient flow of the resource. Despite its action, this was to continue to dominate the policy-making agenda for years to come (Natorski and Surrallés, 2008). Third, the EU looked to induce competition that would suppress energy prices to facilitate economic growth in the bloc, following dwindling economic expansion in the early-2000s. These three objectives overshadowed any substantive climate-related intervention in natural gas markets.

The Commission introduced the Second Energy Package⁸ to engineer a competitive and secure natural gas market. Its key theme was *unbundling*, meaning that it sought to separate infrastructure ownership from the trade and, on occasion, production of the fuel—these activities were frequently housed under the roof of a single vertically integrated company that dominated its market. The goal was to open transit capacities for competition, reducing rent-seeking activities in relation to natural gas infrastructure. The Commission also sought to justify its actions on environmental grounds. The Directive states that “Member States shall ensure [... that] natural gas undertakings are operated in accordance with the principles of this Directive with a view to achieving a competitive, secure and environmentally sustainable market in natural gas”⁹.

A focal piece of EU energy legislation suggested that natural gas offers an “environmentally sustainable source of energy”. This is an oxymoron per definition, but reflects the widely accepted narrative that natural gas as a transition fuel can lower emissions by substituting more polluting fossil fuels, thereby making the energy mix *more sustainable*. In-fact, it made the economy less carbon intensive, but its non-renewable qualities did not necessarily make it sustainable. This goes to show the strong impact a discourse based on a specific narrative can have, when supported by a number of interests and the widely-adapted fossil fuel-reliant practices. An interviewee working within the Commission's DG Ener at the time also noted that this was an oversight on behalf of policy-makers, but also reflected a win for the natural gas industry, since it upheld and codified the favourable framing of the fuel on environmental grounds.

⁸ For electricity: Directive 2003/54/EC, 26.06.2003 and for natural gas: Directive 2003/55/EC, 26.06.2003.

⁹ In this same document, the Commission includes climate change under the umbrella of environmental protection.

2004 brought a change to the European Union's energy markets with the Eastern Enlargement. This rewrote the framework within which the Commission operated, by introducing new energy security dispositions that needed to be aligned into the strategic objectives of supranational bodies. Western European countries had relatively well-diversified natural gas import routes and interconnected markets—both of which enhanced supply security. The Commission could focus on increasing competition which concomitantly was also understood to have led to higher supply security. This shifted with the Eastern Enlargement, since newly joined countries were heavily reliant on Russia-sourced natural gas frequently supplied through a single- or a very limited number of channels, which left them susceptible to Gazprom's and—more broadly—the Kremlin's influence. The Commission introduced measures¹⁰ to safeguard the supply security of natural gas for all EU member states, which it envisioned to achieve via greater supranational cooperation and heightened competition. These measures had relatively little tangible impact in the early aughts, since increasing competition remained in the Commission's crosshairs.

Newly joined member states also brought energy mixes where coal played a relatively greater role, rekindling arguments that emphasise the benefits of substituting coal for natural gas. Newly joined countries such as Poland and the Czech Republic brought with them an extensive reliance on coal consumption. Policy-makers and leaders of private enterprises also frequently made arguments that emphasised their limited means to invest in expensive low carbon technologies, leading them to argue that natural gas could significantly alleviate air pollution and greenhouse gas emissions in a cost-effective manner. Coal-to-gas switching in Eastern enlargement states was especially pertinent, since few alternatives existed at the time—this was before the launch of the *Energiewende* and the decline of renewable energy prices. Natural gas was the most plausible source of energy that could reduce emissions, but this argument continues to be made by leaders across the board despite plummeting technology prices since. This leads many to argue that natural gas' transitional role will differ in

¹⁰ COM(2002) 488 final, 11.09.2002; COM(2002) 488 – C5-0449/2002 – 2002/0220(COD), 23.09.2003; adopted as Council Directive 2004/67/EC, 26.04.2004.

(wealthier) countries that are more advanced in their energy transition and (less wealthy) countries that still need to undertake extensive change.

4. The means to ensure a competitive market: the Third Energy Package

Natural gas policy came to a turning point in 2009, for two reasons: the Commission introduced the Third Energy Package¹¹ and Europe faced the largest scare to-date stemming from Russia halting natural gas supplies. The introduction of the Third Energy Package may have preceded the supply halts, but it was designed to establish a well-functioning market that enables an efficient allocation of resources. It sought to overcome the shortcomings of the First and Second Energy Packages in creating a competitive EU natural gas market, by opening up pipeline capacities for competition when instating Third Party Access (TPA). This would have established a competitive transmission market in the EU, ending the rent-seeking activities and monopole positions of some firms. The industry resisted and contested these measures, but ultimately agreed to the new principles. The Commission's market intervention re-wrote the framework within which stakeholders operated, given the wide-ranging changes that they abided by they had come to believe that the role of the fuel would be stable for years to come.

The Commission's Third Energy Package—similarly to the Second Energy Package—calls for “a competitive, secure and environmentally sustainable internal market in natural gas” (articles 3 and 40), re-encoding the paradox of the call for an *environmentally sustainable internal market in natural gas*. It may have been the cleanest fossil fuel, but it is not sustainable *per definition*. The lack of attention in the Third Energy Package towards the matter was also surprising, since the Commission had decisively shifted to develop an increasingly ambitious climate agenda with the introduction of the EU's emission trading system (EU ETS)—already in Phase 2 as of 2008—and the EU 2020 goals. These measures paired with the Third Energy Package would have continued to back the fuel in substituting more polluting coal. It was to have an edge over coal through more efficient markets reducing consumer prices and climate tools weighing on more polluting competing fuels. Natural gas demand increased in the

¹¹ Directive 2009/73/EC, 13.07.2019.

late aughts and the early-2010s, but this was a rebound to pre-recession levels. Meanwhile, the Commission's undertaking to move consumers away from more polluting coal to natural gas did not materialise as carbon prices remained low, the European coal industry continued to receive ample state support, and global prices of coal imploded following the Great Recession. Natural gas could not capitalise on playing a transition fuel role when most had anticipated that it would (Stern, 2017).

Alongside the Commission's market-engineering to ensure the functioning of a competitive market, the natural gas sector underscored its fuel's ability to alleviate pollution. The proliferation of this positive framing was essential in overcoming the fuel's tarnished image after the 2006 and 2009 gas crises. Supply crises may have erupted between the governments of Russia and Ukraine, but Russian natural gas supplies through Ukraine dominated the EU's energy mix; consequently, its impact reverberate through most of Europe, weighing on the fuel's acceptance by policy-makers and the broader public. It took years for producers to regain the trust of the general public, and they realised that emphasising the environmentally favourable characteristics of their source fuel could help their case. Environmental considerations offered a strategic opening for the industry to repair the fuel's image, especially considering the Commission's shift to climate policy with the recently accepted 2020 goals and the 2030 goals that it was discussing. The message was reflected in Royal Dutch Shell, ExxonMobil, and Dutch Government-owned Gastera's (2009) influential 'Natural gas as a transitional fuel: For a sustainable energy future' report, sketching a natural gas-dependent energy transition through 2050 and beyond, but further reinforcements of this message were to come.

5. The golden age of gas

The natural gas sector's initiative to emphasise the positive climate-aspects of natural gas accelerated in the early-2010s, shaping the Commission's natural gas policy as well. These positions were situated in a setting where there was a proliferation of the transition fuel discourse, even amongst some environmental organizations (California Environmental Associates, 2007). Moreover, there was a growing availability of the fuel following the US shale revolution, its expanding markets via rising demand in Asia, and

the potential for it to substitute coal in most regions based on sheer economics (IEA, 2012; Sernovitz, 2016; Grigas, 2017). Growth in the availability of natural gas paired with its potential to alleviate coal-reliance was what underpinned the authoritative International Energy Agency (IEA) (2011) to hail the *Golden Age of Natural Gas* in the 2011 edition of its prestigious and widely-read World Energy Outlook series. This was crucial to inscribe the positive narrative connotation stakeholders and consumers linked to the fuel, even if the report had emphasised that the fuel's future was bright in developing markets while many questions loomed large in Europe regarding its future.

The Massachusetts Institute of Technology Energy Initiative's (MITEL) (2011) prominent 'The Future of Natural Gas' report also heavily contributed to codifying the positive descriptor of the fuel, which it labelled as a *bridge fuel*. They also argued that natural gas could help alleviate air pollution relatively quickly, until low carbon technologies are developed. This message subsequently surfaced in a number of other prominent reports (European Gas Advocacy Forum, 2011; IGU, 2015; IEA, 2016, 2017). This line of interpretation was expanded in these reports by arguments emphasising that natural gas' transition or bridge role was also linked to its ability to complement renewables as the energy transition develops. It was deemed an ideal fuel to help overcome the volatility in renewable energy production, since natural gas power plants (especially open cycle gas turbines) could ramp up electricity generation relatively quickly, when energy from wind or solar rays halts. It could also complement renewables (while alleviating some emissions by substituting more polluting fossil fuels) in sectors that are difficult or costly to electrify, primarily heat production of various sorts and industrial applications (Smil, 2015).

The proliferating narrative that natural gas was a transition fuel also drove some criticism, given its risks of perpetuating lock-ins. Byrne et al. (2006) criticised these positions as *greenwashing*¹² natural gas. Howarth (2014) labeled natural gas as a *bridge to nowhere*, given the risks associated with heightened methane emissions and thereby high life-cycle emissions as well as society's ability to overcome the lock-in of the fuel. Proponents of the bridge and transition fuel narratives argued that consumers would

¹² For discussions on greenwashing in general see: (Lippert, 2011) and for natural gas-specific discussions see: (Byrne, Toly and Glover, 2006; Stephenson, Doukas and Shaw, 2012).

gradually phase the fuel out, but such long-term planning or related discussions did not surface in the sector's discourse or that of policy-makers. Generally any sort of planning that targeted natural gas consumption was absent from the Commission's approach to the fuel since it had no jurisdiction over the specific fuel mixes of member states according to the Treaty of Lisbon¹³—it had to take a technology neutral approach. In principle, it could not favour nor hinder the expansion of natural gas explicitly on any grounds, including climate and environmental. On the other hand, both its actions and the discursive framing of the fuel reflected preference to sustaining (or expanding) its role, despite the objections of a number of experts.

The Commission may have had limited influence over national energy policies, but it had accrued vast powers over EU action to enhance energy security and to further climate policy. The natural gas crises posed a wake-up call for national governments, underscoring the vulnerabilities that came with energy import dependency. The Commission's leadership in developing the protocols and mechanisms to curb supply security threats was crucial, which also bode well with the further intervening in the market and facilitating integration. It assumed that competition among suppliers and infrastructure integration allowing unimpeded distribution of the fuel would underpin supply security. Environmental considerations also underpinned the expansion of natural gas markets in the short-term, as noted in a 2009 working document: “[g]as has an important role as a transition fuel in the move towards a high-efficiency, low-carbon energy system”¹⁴. Seemingly, goals of increasing energy security, competition, and reducing emissions by relying increasingly on natural gas complemented one-another, but the risks of lock-ins were becoming increasingly problematic—an essential consideration given the three to five decades for which natural gas infrastructure is typically used.

¹³ The contradiction is clear when one compares Article 192 and Article 194 of the Consolidated Version on the Functioning of the European Union (C 326/133), 26.10.2012.

¹⁴ SEC(2009) 979 final, 16.07.2009.

6. Energy Union and the Clean Energy Package: from energy security to an energy transition

Europe's dependence on natural gas imports has prohibited it from shaking energy security concerns. These fears dominated the Commission's agenda following the 2006 and 2009 crises, but were exacerbated with Russia's illegal annexation of Crimea and its subsequent involvement in eastern Ukraine. The latter did not impact natural gas supplies, but sustained the prominence of security of supply on the policy agenda (Van de Graaf and Colgan, 2016). The Commission responded¹⁵ to supply security concerns by shifting its focus to facilitate competition reflected in the Third Energy Package to emphasising a need to pivot away from solely market-based coordination mechanisms to solidarity and coordination in times of crisis. The new operational provisions of the Gas Coordination Group was a first step in this direction in 2011¹⁶ and was to be followed by further actions, such as the introduction of the Projects of Common Interest¹⁷ (PCI). These were projects the Commission aimed to support and provide financing for if they allowed (multiple) (member) states to enhance energy security. PCIs became one of the focal financing instruments that expanded the Commission's ability to facilitate EU market integration, reduce supply security threats, and, ultimately, exercise greater control over the natural gas market's development trajectory.

EU policy-makers took further action to counter supply security risks by designing the contours of the Energy Union. This was first proposed by the European Council's president Donald Tusk (2014) and the Commission snatched at the opportunity to hone a more extensive EU energy strategy. Ideas for an Energy Union were compiled in a widely leaked paper (Stollmeyer, 2015), which was shaped by member states and lobby groups before the final Communication¹⁸ was published in February 2015 (Evans, 2015). This was to be *the* policy vehicle that ensures EU energy

¹⁵ Regulation (EU) No 994/2010, 12.11.2010 and Commission Decision 2011/C 236/09, 11.08.2011 were key in these endeavours. Neither included any reference to sustainability or climate change related concerns.

¹⁶ Commission Decision 2011/C 236/09, 11.08.2011.

¹⁷ Prompted by European Parliament resolution 2011/2034(INI) [P7_TA(2011)0318], 05.07.2011; followed by Commission notice no. 2013/C 33 E/06, 05.02.2013; followed by Regulation (EU) No. 347/2013, 17.04.2013 and Regulation (EU) No. 1391/2013, 14.10.2013.

¹⁸ COM(2015) 080 final, 25.02.2015.

security. It reflected an anticipation that natural gas was set to continue to play a prominent role in the EU's energy mix for decades to come by focusing on how the EU will distribute the fuel, as opposed to questioning the need for its consumption altogether. The EU's climate policies had begun to support energy efficiency measures simultaneously, but these remained in their infancy and had a relatively limited reach with respect to natural gas even though it played a leading role in enhancing the supply security of oil markets: "[g]iven the EU's import dependence and global climate change challenges, we need to take additional measures to reduce its oil consumption"¹⁹.

The Energy Union also consolidated the role of the Commission in EU energy affairs, which became the *de facto* regulator of the EU's energy markets. It also expanded the role of the Commission's technocratic arm, the Agency for Cooperation of Energy Regulators (ACER), whose technical decision-making capacities and scope of action increased. As climate change's prominence increased on the Commission's agenda—it introduced the 2030 emission reduction targets and the long-term aim to become carbon neutral by 2050 (European Commission, 2011, 2013)—signs that it would curtail support for natural gas also surfaced. One domain for this was the quasi-freezing of natural gas PCIs. Since 2014, the Commission backed very few natural gas-related PCIs and began to move its support to electricity grid developments that would cater to both energy security enhancement and renewable integration. The industry anticipated a declining trend of policy-makers actively supporting natural gas infrastructure, but incumbents deemed it a relatively minor dent in the overall prospects of the fuel.

The natural gas industry still assumed that it was still in a safe space through most of 2015, but this was set to change with the Paris Agreement (UNFCCC, 2015) and the subsequent introduction of the Clean Energy Package for All Europeans Communication²⁰. The historic agreement providing legitimacy for further climate action, which the Commission would willingly lead. It effectively turned the Energy Union from an energy security vehicle to one devoted to an energy transition. The Commission led action by introducing the *Clean Energy for All Europeans*

¹⁹ COM(2015) 080 final, 25.02.2015, p. 5.

²⁰ COM(2016) 860, 30.11.2016.

*Communication*²¹ (also referred to as the *Winter Package*) in late-2016 to “boost the clean energy transition by modernising our economy” (Sefcovic, 2016, n.p.) by building on the Energy Union and the European Council’s 2030 climate and energy policy framework. It provides the missing pieces to implement the 2030 goals, and, in-turn, move toward meeting COP21 commitments. The tools by which the Commission would enforce its will also became increasingly evident as the governance structure of the Energy Union²², through its control and oversight over the National Energy and Climate Plans, for example.

The Clean Energy Package overwhelmingly focused on renewables and electrification, sending a strong signal as to what its priorities were. The Package heeds little attention to natural gas. This has two reasons. As mentioned, the Commission sought to pursue a path of decarbonisation based on renewables and electrification. However, the natural gas did not push to be included in the policy package, arguing that it was still preoccupied with adjusting to the Third Energy Package and did not want to face further disruptions. Their underlying assumption in this position was that their fuel remains an indispensable component of the EU’s energy mix. The Commission’s focus on renewables led it to take a harder anti-fossil fuel stance than in previous policy papers, which became evident with the Package’s criticism of fossil fuel subsidies. The EU-body articulated steps to ramp up action against inefficient fossil fuel subsidies for carbon-intensive fuels, impacting subsidies which in 2015 amounted to €6.6 billion and were linked to “the legacy of historical investment subsidies, fossil fuel investment grants, feed in tariffs, fuel tax exemptions, electricity production, and decommissioning and waste disposal”²³. The Commission sought to halt these in the future.

The Commission intervened directly in the EU’s energy market with the Clean Energy Package by devising an energy strategy that was compatible with its climate policy. Until then, the two realms essentially existed in a bifurcated manner. Climate action had limited reach and impact on fossil fuel consumption, but this changed with the Commission’s decision to openly support renewables and electrification. It indicated

²¹ COM(2016) 860, 30.11.2016.

²² COM(2015) 572 final, 18.11.2015.

²³ COM(2016) 860, 30.11.2016, p. 6.

that renewables were the future and all other source fuels will only be considered if they are carbon neutral. The natural gas industry may have opted out of the Package, but in hindsight regretted this decision, since the EU turned a corner without including their fuel. Policy-makers also deemed the sole focus on electrification and renewables a mistake, since it only offered a piecemeal EU energy strategy, given that available technology did not allow full-electrification. This point was underscored by the powerful lobby of electricity generators, Eurelectric (2018), which presented electricity-heavy future energy scenarios, but of these none were able to achieve more than an 80% electrification. Anything higher would be technologically extremely challenging, costly, or outright impossible. The Commission realised its omission and returned to the drawing board to devise how it can design an energy transition that would be economically and technologically feasible.

7. A concerted response from the natural gas industry

Natural gas industry incumbents saw little need to devise a (long-term) strategy presentable to EU decision-makers until the launch of the Clean Energy Package. Incumbents merely focused on distinguishing their fuel from other fossil fuels by emphasising the transitory role it could play. Meanwhile, policy-makers and NGOs focused most of their attention on coal—an act the natural gas industry embraced, since it would support coal-to-gas switching. However, the clouds were gathering above the fuel and its industry's incumbents with the Paris Agreement and the Clean Energy Package, since these shifted focus to electrification and renewable-based electricity generation, while not allocating a specific role for natural gas. This mobilised stakeholders, which also introduced unprecedented cooperation between various actors. Until then, natural gas industry incumbents had been a highly divided group of actors that sought to capitalise on their various assets. There was little cooperation and alignment between producers—within which further division sustained between Norwegians, Russians, etc.—transmission system operators, other infrastructure owners (e.g. storage of LNG terminals), and the myriad of distribution system owners who pursued their interests assuming a certain shielding from climate policy predicated on the characteristics of their fuel.

This is not to say that the natural gas industry was not a group of powerful actors that sought to exercise political power, but rather that it was relatively disorganised and did not have any cross-industry strategy to sustain its business. Until recently, the main advocacy groups for natural gas were not particularly strong at the EU-level, especially compared to that of coal's or electricity's, given their understanding that natural gas will be a transition fuel. Eurogas, the most prominent natural gas lobby group, included multiple players who also had extensive interests in the coal industry as well. This curbed its scope of action, since it could not lobby too extensively for coal-to-gas switching. Simultaneously, natural gas industry players have also had significant influence on decision-makers at the highest levels. A typical example in the industry is Gerhard Schröder, the former chancellor of Germany becoming the President of Nord Stream's—a significant pipeline project connecting Russia and Germany—board. Beyond such high-profile cases, the natural gas industry has deployed just over a thousand lobbyist and spent €100 million on lobbying in 2016 alone, compared to the €3.4 million to counter-lobby which supported the public's interest (CEO, 2017)—reflecting that stakeholders actively sought to influence policy-makers.

Policy-makers began to question the sustainability of natural gas and the role that it can play in the EU's energy future. This was partly based on a growing attention to life-cycle emissions of the fuel: methane emissions had been left unaccounted for, despite it being a potent greenhouse gas that slips into the atmosphere throughout the natural gas supply chain. Moreover, squaring natural gas consumption with the EU's climate policy became increasingly untenable in the long run. Lock-ins posed a significant problem, given the long-term investment infrastructure owners made when constructing a pipeline, for instance (Unruh, 2000). The confluence of these factors raised the point that the natural gas sector was in a precarious position with an undefined future. The industry realised that, until then, it had provided little indication of how the fuel's role will develop in the future and simply relied on proclaiming that it was the proprietor of the cleanest fossil fuel, which insulated it from climate action. However, this would not suffice in the future.

Natural gas industry incumbents leapt into action upon being confronted with the existential threat climate action posed. Actors continued to emphasise that it was a flexible, wide-available source-fuel that could complement intermittent renewables. Key natural gas industry incumbents also emphasised and popularised that switching to natural gas from more polluting fuels was a strategic objective to execute climate action. Eurogas pointed out that coal-to-gas switching can curtail emissions by up to 5 percentage points (Braaksma, 2018), while Equinor (formerly Statoil) (2017) argued that such fuel-switching was focal to underpin the credibility of the EU's climate strategy. These positions were generally backed by industries and their lobby groups reliant on the fuel, including as Eurofer, the EU steel association, and Cembureau, the EU cement association. Coal-to-gas switching continues to have a limited impact, but it was Eurelectric's (2018) influential findings that prompted policy-makers to consider that they could not electrify all modes of energy consumption, leading them to consider in what form gas can be a part of the EU's decarbonised energy system.

Natural gas stakeholders acknowledged the threat climate change posed to their sheer existence, leading the sector to convey a more unified stance by developing a common narrative on how their fuel could be a part of the EU's energy future. European transmission system operators were the first to take concerted action to ensure that their businesses survived in a decarbonised world. This decision was heavily shaped by the path dependence created by their immobile infrastructure. Unlike producers, they were unable to shift their revenue earning models to other geographies²⁴ and could only remain in business by becoming a part of a decarbonised energy system. TSOs highlighted the need for some strategic action on behalf of the industry and prompted other stakeholders to begin to consider how they can play a role in a decarbonised energy system. The natural gas industry had to devise a common message that they could provide an *end-fuel*, as opposed to a *transition fuel*. This strategy was pertinent, as underpinned by a study commissioned by Friends of the Earth, unequivocally stating that “[f]ossil fuels (including natural gas) have no substantial role in an EU 2°C energy system beyond 2035” (Anderson and Broderick, 2017, p. 5).

²⁴ As examples, we can bring up Gazprom's diversification of exports from Europe to Asia (Power of Siberia pipeline) and interest in developing LNG export terminals.

The industry's largest effort to shape EU policy and secure its future has been manifest in its bid to create a narrative of an energy future that includes gas (Jameson, 1982; Szeman, 2019)—be that as natural gas or methane in a decarbonised form. A key point of influence has been the Commission's limited capacities and the technical know-how of the industry leading policy-makers to frequently rely on studies conducted by external consultants and industry representatives. The latter may look to seek objectivity, but they are also well-aware of the influence these estimates have and their ability to skew figures according to strategic interests. Framing is essential since narratives also shape the connotation, planned futures, and general relation of policy-makers to fuel—even if this is based on sound material characteristics. Reports have become crucial, since the Commission's bid to devise an energy future for the EU has been reliant on gathering data and assessing the role various fuels can play.

The Commission has tasked natural gas industry incumbents to provide the input which will be the basis of further market engineering i.e. the trajectory of the EU's energy transition. At recent Madrid Forum's²⁵ stakeholders have extensively debated the future of natural gas and policy-makers have been tasked to write studies that help establish the future of natural gas (European Commission, 2017, 2018a; Borchardt, 2019). Amongst others, the advocacy group of hydrocarbon producers, IOGP²⁶, has been tasked to explore CCS, while the infrastructure lobby group GIE will have to assess methane emissions. While these actors are well-prepared to explore these issues, the reliance of policy-makers on this technical knowledge also leaves them susceptible to devising further natural gas policy that incorporates climate considerations in a manner that favours the industry over the common good and the reaching of climate targets. Industry sources and advocacy groups argue that they too strive to provide well-founded research, but simultaneously, they openly acknowledge that these studies are influential in shaping the role of natural gas in decarbonisation and that key industry

²⁵ The Madrid Forum has been a key platform where the Commission has historically discussed natural gas market technicalities with stakeholders, but, in recent years, this has turned into a forum where EU natural gas policy is discussed. The turning point, here too was the Paris Agreement and the Clean Energy Package, following which the focus of the Forum shifted towards how natural gas can be adapted to suit climate policy.

²⁶ International Association of Oil & Gas Producers.

voices (e.g. ENTSO-G's) are being heard by policy-makers. The conflict of interest is trivial.

The representation of interests at the Madrid Forum is also highly asymmetrical, with NGOs excluded from the proverbial table. Participants are limited to the industry, policy-makers, and a few academics. The Forum has, however, provided a platform through which the industry can square the circle by allowing the Commission to meet its climate policy goals and maintain natural gas consumption. The European Commission, Eurogas, European Federation of Local Energy Companies (CEDEC), Gas for Climate²⁷, and European Network of Transmission System Operators for Gas (ENTSO-G) all emphasised the need to incorporate gas as a mixture of its various forms into the EU's decarbonised energy future (European Commission, 2017, 2018a). The utilisation of infrastructure also underpins these considerations, since the EU has a vast natural gas grid that should not be left unused (Trinomics, 2018). These have led the Commission to state in its *A Clean Planet for all communication*, the Commission (2018b) states that: “[s]ustainable renewable heating will continue to play a major role and gas, including liquefied natural gas, mixed with hydrogen, or e-methane produced from renewable electricity and biogas mixtures could all play a key role in existing buildings as well as in many industrial applications” (p. 8).

8. Conclusion

In the course of the past three decades, natural gas has gone from being understood as the most preferable fossil fuel to one for which its industry has to create a narrative to maintain its relevance in the EU's energy mix. Through most of the 1990s and the aughts, the European Commission's climate agenda had very little impact on its natural gas market engineering. Both supply and demand of the fuel rose, while policy-makers focused on enhancing competition and creating a single EU market. Environmental and climate considerations were mentioned in policies, but did not have a particularly strong impact. During this period the understanding that natural gas was the least polluting fossil fuel was normalised, allowing stakeholders to assume that it

²⁷ A group of seven EU gas transit firms: Enagás, Fluxys, Gasunie, GRTgaz, Open Grid Europe, Snam, and Teréga, in addition to two renewable gas industry associations: the European Biogas Association and Consorzio Italiano Biogas.

had a key role to play when the energy transition would kick into full swing. Academics identified natural gas to be able to play the role of a transition fuel, which, in principle, could even benefit the consumption of natural gas. However, as long as the Commission's climate policy did not have a sufficient impact on energy policy, the transition fuel descriptor played a marginal and more-or-less unimportant role.

As the Commission began to introduce stringent climate action, the narrative that natural gas is the transition fuel was increasingly emphasised by industry incumbents. It shaped the policies the Commission introduced to govern of the fuel's markets, since climate policy tools were designed to target more polluting fossil fuels and support renewables before beginning to address natural gas. The transition fuel discourse also grew another leg, as the fuel provides an ideal complement to renewables. Despite extensive efforts to promulgate the transition fuel discourse and shape events to support this vision, the narrative had little tangible impact. This was due to the setting in which the EU's energy transition unfolded: coal remained to be prominent in the EU, renewables were increasingly competitive, and the EU ETS was ineffective. The large-scale coal-to-gas switching many had envisioned in the early-2010s never materialised.

Following the Paris Agreement, it became clear that the EU had to pursue more ambitious climate policies to avert the destructive impact of climate change. The Commission's ambition threatened the role natural gas could play, since thinking shifted to focus on achieving a decarbonised economy as quickly as possible. This also implied the need to phase out emitting methane from the energy system, especially given the rising concerns over lifecycle emissions. The favourable framing of the fuel or being the *lesser of the evils* did not suffice anymore. Now that the Commission had been empowered to take increasingly stringent climate action, the industry's future became precarious. Industry actors responded by developing and promulgating another narrative, shifting focus from methane being a *transition fuel* to the possibility of decarbonising it. This has been supported by policy-makers, who acknowledged the continued need for gaseous fuels in the EU's energy system. The natural gas industry has been successful in promoting a decarbonised vision—that includes methane-based fuels

in some form—for the EU's energy future, instead of a sustainable vision—solely reliant on renewables.

The natural gas industry's story provides unique insights into how an industry can become locked into its own paradigm and hinder its ability to react to a quickly changing environment. An understanding that natural gas will become a transition fuel was widely accepted by policy-makers and those involved with the energy sector at-large, which reassured the natural gas industry that its future was secured. If anything, demand for its fuel would increase. This narrative coupled with the fuel's lock-in led the industry ignore the Commission's changing focus. As climate change became more pressing and the Commission more powerful, it was in a better position to take climate action and address *all* fossil fuels, irrespective of their relative emissions. The natural gas industry—drawing on its extensive power bases (e.g. infrastructure, lobby, narrative creation, technology)—has since leapt into action and mobilised around the common cause for the need to sustain its operations. The impact of its efforts will however only be seen years from now.

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